



IEEE CINCINNATI SECTION NEWSLETTER - MAY 2008

MAY MEETING **Student Projects**

DATE: Thursday, May 22, 2008
PLACE : Raffel's – 10160 Reading Road (see below for directions)
TIME : 5:30 p.m. to 6:00 p.m. - Social Time
6:00 p.m. to 7:00 p.m. - Dinner
7:00 p.m. to 8:30 p.m. - Presentation

COST FOR DINNER: \$10.00 per person – REGARDLESS OF MEMBERSHIP OR MEMBERSHIP GRADE!

NOTE: DINNERS ARE ALWAYS OPTIONAL - YOU MAY ATTEND THE PROGRAM ONLY.

MENU SELECTIONS: Country Fried Chicken, Spaghetti with Meatballs, Meatloaf with Brown Gravy, Whipped Potatoes, Succotash, Caesar Salad, Fresh Fruit Salad, Biscuits, Apple Dumplings, Coffee, Tea, Iced Tea, Soft Drinks. There is also a bar available for the purchase of alcoholic drinks.

LOCATION: Raffel's is located at 10160 Reading Road, south of Glendale-Milford Road on the east side of Reading. Take I-75 to the Glendale-Milford Rd. Exit, go east on Glendale-Milford Road approximately $\frac{3}{4}$ of a mile to Reading Rd. and turn right on Reading.

RESERVATIONS: Please email Fred Nadeau for reservations at <mailto:fnadeau1@earthlink.net> (preferred) or call the Section Voice Mail at 513-629-9380 by **Noon, Tuesday, May 20, 2008** if you plan to attend. Please leave your Name, IEEE Member Number, and a daytime telephone number.

PE CREDITS: Depending on the subject matter, attendance at IEEE Cincinnati Section Meetings now qualifies the attendee for Professional Development Hours towards renewal of Professional Engineers Licenses. Required documentation will be available following the meeting! The Section Meetings also provide a great opportunity to network with fellow engineers in the area.

ABOUT THE MEETING: This month's meeting will feature presentations by senior students from the College of Engineering at the University of Cincinnati. We have also extended an invitation to students from the Computer and Electronics Engineering Technology program at Northern Kentucky University and the Electrical Engineering program at Miami University. Students will present their findings in a brief slide show, demonstrate their projects, and answer questions from the audience.

MEMBERSHIP NEWS

NEW MEMBERS

The following individuals are IEEE members who are new to our Section:

Ali A. Alfayez	Hoang Lai	Mamoun Sawah
Balaji Ananthanpillai	Eric L. Lapresto	Patrick E. Searfos
Kevin Berndsen	Daniel Legg	Brent A. Shields
Robert Brockman	Wei Li	Scott Smith
Thomas P. Ferrell	Michael R. Logies	Christopher P Trampel
Royden J. Forsythe	Michael A. Miskus	Tim Tylinski
Slobodan M. Gataric	Guangdong Pan	Phillip Ulrich
Yi Hu	Karen Price	Timothy Joseph Wurth
Von Edwin Huffaker		

We wish to welcome these new members to the Cincinnati Section!!!

Scanning the Past: A History of Electrical Engineering from the Past

Submitted by Bob Morrison, Editor

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William D. Coolidge and Ductile Tungsten

Eighty-five years ago this month, William D. Coolidge presented a significant paper concerning the discovery of a new method of producing ductile tungsten at a meeting of the American Institute of Electrical Engineers (AIEE). The breakthrough which he reported had been achieved by a research team led by Coolidge at the General Electric Research Laboratory in Schenectady, NY, and it was to have a major impact on production of electric lights, electronic tubes, and numerous other applications.

Coolidge was born in 1873 on a farm near Hudson, MA. He graduated in electrical engineering from the Massachusetts Institute of Technology (MIT) in 1896 and spent a year as a laboratory assistant at MIT. He then accepted a graduate fellowship for study in Germany where he earned the Ph.D. in physics from the University of Leipzig in 1899. He then returned to MIT where he worked as a laboratory assistant to Prof. Arthur A. Noyes and did some teaching until 1905, when he joined the General Electric Research Laboratory. He soon began what proved to be a very difficult quest for a way to produce ductile tungsten suitable for filaments in incandescent lamps. He became assistant director of the Research Laboratory in 1908, and two years later, reported the successful outcome of the ductile tungsten project.

In his May 1910 AIEE paper, Coolidge outlined the difficulties in producing ductile tungsten and how they had been overcome by a combination of reducing impurities and carefully controlled mechanical working. He stated that "the product which we now have is a perfectly pliable ductile wire, which has the strength of steel." He mentioned that approximately 20 research chemists and a "large body of assistants" had contributed to the effort. Samples of ductile tungsten wire in various sizes were available for inspection by those who heard his paper. Commercial lamps using ductile tungsten came on the market in 1911 and soon became a major source of income to the General Electric Company. Coolidge was awarded a patent on the process in 1913 although it was held to be invalid by the courts some years later on the grounds that it did not constitute an invention in the sense required by patent law. He published a second AIEE paper on applications of metallic tungsten in 1912 and received the Rumford Medal of the American Academy of Arts and Sciences in 1914.

Coolidge also became known for his contributions to the development of improved X-ray tubes. The "Coolidge tube" introduced in 1913 enabled better control of X-ray intensity than previously possible. During the first World War, he helped develop portable X-ray apparatus for use by the military and also worked on a project for the sound detection of enemy submarines. He also made important contributions to the field of vacuum-tube electronics where ductile tungsten proved an important innovation, especially in high-power tubes.

Coolidge received the Edison Medal of the AIEE in 1928 in recognition of his many contributions to electrotechnology and also was awarded the Faraday Medal by the British Institution of Electrical Engineers in 1939. In 1932 he succeeded Willis Whitney as Director of the General Electric Research Laboratory and devoted most of his energy to being a research administrator for the rest of his career. He became a GE vice president in 1940. He retired in 1944 but continued to work as a consultant to GE and in 1946 was rehired for a few months to establish a laboratory in Richland, WA, for atomic research and development. A biography of Coolidge entitled *Yankee Scientist* by John A. Miller was published in 1963. Coolidge died in 1975 at the age of 101.

*James E. Brittain
School of History, Technology and Society
Georgia Institute of Technology*

IEEE NEWS

TECHNICAL PAPERS SOUGHT FOR IEEE WIRELESS HIVE NETWORK CONFERENCE

WASHINGTON (23 April 2008) -- Organizers of the IEEE Wireless Hive Network Conference (IEEE WHNC 2008) are seeking technical papers from authors presenting the latest research, innovations and implementations related to the theory and practice of wireless sensor network systems, printed electronic device technologies, cognitive radio and related information system support.

IEEE WHNC 2008 (<http://www.ieee-whnc.org/index.html>) will be held at the Courtyard by Marriott in Austin, Texas, on 7-8 August. It will feature keynote addresses and panel discussions by leading experts, as well as innovative technology presentations.

Dr. Deborah Estrin, a UCLA professor of computer science with a joint appointment in electrical engineering, will deliver the 7 August keynote. She is founding director of the National Science Foundation-funded Center for Embedded Networked Sensing at UCLA. Jon Adams, director of Radio Technology and Strategy for Freescale Semiconductor, is the 8 August keynote speaker. Adams is an expert in wireless systems and communications, focusing on ZigBee, Wi-Fi, WiMAX and cellular 3G technologies. He is on the IEEE Industry Standards and Technology Organization board of directors.

Wireless hive networks (WHN) are local communities of wireless devices associated with such items as warehouse shelves, biomedical sensing and border motion detectors. IEEE WHNC 2008 will draw researchers, engineers and other practitioners to address WHN protocols, power generation, semiconductor processes and other WHN production and efficiency issues.

Authors are invited to submit three- to six-page papers in IEEE conference format. All submissions must describe original work not previously published or currently under review for publication in another conference or journal. Topic areas include, but are not limited to: device technology; system architecture and implementation; applications; security; legislative environment and regulatory policy; and cognitive radio.

The submission deadline is 15 May 2008. See <http://www.ieee-whnc.org/whnc2008cfp.pdf> for more information.

**TEXAS ENGINEER RECEIVES IEEE-USA'S HIGHEST HONOR,
ONE OF 24 IEEE-USA AWARD RECIPIENTS**

WASHINGTON (30 April 2008) -- Jean M. Eason of Fort Worth, Texas, received IEEE-USA's highest honor during the IEEE-USA Annual Meeting at the Hyatt Regency Indianapolis on Saturday 26 April.

Eason was presented the Robert S. Walleigh Distinguished Contributions to Engineering Professionalism Award "for long-term leadership and accomplishments in IEEE-USA professional activities." She is the first woman so honored.

Eason was one of 24 award recipients recognized for their professionalism and technical achievements, as well as literary contributions to public awareness and understanding of the engineering profession in the United States. John Meredith, IEEE-USA's 2007 president, made the presentations.

Eason is a senior member of the IEEE who has held numerous leadership positions within IEEE-USA, including vice president, professional activities in 2005-06. She spent 15 years working in avionics systems design and now works as a consultant on specialized applications for small businesses, and in technical communications and documentation.

Robert S. Walleigh, an IEEE member electrical engineer, worked for the National Bureau of Standards -- now the National Institute of Standards and Technology (NIST) -- for more than 35 years. He retired as a senior adviser for international affairs in 1979. He worked the next 18 years as an IEEE-USA senior specialist.

The award was first presented in 1978 and renamed the "Robert S. Walleigh Distinguished Contributions to Engineering Professionalism Award" in 2000.

IEEE-USA's distinguished awards are administered under its Awards and Recognition Committee and approved by the IEEE-USA Board of Directors. The nomination deadline for 2008 awards is 31 July 2008. For additional information, go to <http://www.ieeeusa.org/volunteers/committees/awards/>

**BOSTON-AREA HOMELAND SECURITY CONFERENCE BUSINESS PANEL TO FEATURE
LOCAL AND NATIONAL EXPERTS ON TECHNOLOGY COMMERCIALIZATION**

WASHINGTON (7 May 2008) -- Dr. Thomas Cellucci, chief commercialization officer for the Department of Homeland Security (DHS) Science and Technology (S&T) Directorate; and Peter Ciganer, executive vice president, In-Q-Tel, will be featured "Business Panel" speakers at the 2008 IEEE International Conference on Technologies for Homeland Security.

The eighth-annual conference is scheduled for 12-13 May at the Westin Hotel in Waltham, Mass. For more information and to register, go to <http://www.ieeehomelandsecurityconference.org/>.

The "Business Panel," set for Tuesday, 13 May from 8 to 9:30 a.m., will feature organizations contributing to the commercialization of homeland security technologies.

Cellucci and Ciganer will be joined by Ralph E. Taylor-Smith, general partner, Battelle Ventures; Arthur Robert, industry director, Defense & Renewable Energy Technologies, Massachusetts Office of Business Development; Dennis Treece, director of corporate security, Massachusetts Port Authority (Massport) and director, Massport Transportation Security Center of Excellence; and Robert Seelandt, partner manager, MetaCarta, Inc.

Gregory Bialecki, undersecretary, Executive Office of Housing and Economic Development, Commonwealth of Massachusetts, will deliver the keynote address and welcome the panel.

Cellucci is responsible for identifying, evaluating and commercializing technology that rapidly develops and deploys products and services that meet the specific operational requirements of DHS and its end users.

Cellucci, who holds a Ph.D. in physical chemistry, came to DHS after founding a management consulting company that raises capital and provides strategic business services for global high-tech firms.,

Ciganer, who oversees In-Q-Tel's government customer relations and communications, is responsible for helping identify and prioritize In-Q-Tel customers' critical technology needs.

In-Q-Tel identifies and partners with companies that deliver cutting-edge technologies to the CIA and the broader U.S. intelligence community. It was founded by the CIA in 1999 as an independent, non-profit organization to bridge the gap between the intelligence community's technology needs and new advances in commercial technology.

Taylor-Smith will discuss Battelle Ventures' investment interests in security technologies. Robert will speak about business opportunities in the Commonwealth for Defense and Homeland Security businesses.

Treece will discuss the Massport Transportation Security Center of Excellence and how Massport engages the innovation community to pilot technologies at its airport, seaport and surface transportation facilities.

Seelandt will discuss Metacarta's technology commercialization success with federal and state governments, as well as the private sector. The company was started with seed funding from In-Q-Tel.

The 2008 IEEE Homeland Security Conference is organized by the IEEE Boston Section and IEEE-USA. Industry sponsors include Massport, SAIC and Raytheon.

The IEEE Cincinnati Section Executive Committee **Member Names and Phone Numbers**

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